



H2

Form 1449*

Sheet 1 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

U.S. PATENT DOCUMENTS

| **Examiner Initial | Document Number | Date | Name | Class | Subclass | Filing Date if Appropriate |
|--------------------|-----------------|------------|-------------------|-------|----------|----------------------------|
| Umw | 4,507,673 | 03/26/1985 | Aoyama, et al. | 357 | 23 R | |
| | 4,893,273 | 01/09/1990 | Usami | 365 | 185 | 09/21/83 |
| | 5,111,430 | 05/05/1992 | Morie | 365 | 185 | 03/21/86 |
| | 5,260,593 | 11/09/1993 | Lee | 257 | 316 | 06/21/90 |
| | 5,293,560 | 03/08/1994 | Harari | 365 | 185 | 12/10/91 |
| Umw | 5,369,040 | 11/29/1994 | Halvis, et al. | 437 | 3 | 10/03/92 |
| | 5,449,941 | 09/12/1995 | Yamazaki, et al. | 257 | 411 | 04/12/93 |
| | 5,465,249 | 11/07/1995 | Cooper, et al. | 365 | 149 | 10/27/92 |
| | 5,477,485 | 12/19/1995 | Bergemont, et al. | 365 | 185.24 | 11/26/91 |
| | 5,508,543 | 04/16/1996 | Hartstein, et al. | 257 | 314 | 02/22/95 |
| | 5,530,581 | 06/25/1996 | Cogan | 359 | 265 | 04/29/94 |
| Umw | 5,580,380 | 12/03/1996 | Liu, et al. | 117 | 86 | 05/31/95 |
| | 5,670,790 | 09/23/1997 | Katoch, et al. | 257 | 14 | 01/30/95 |
| | | | | | | 09/19/96 |

FOREIGN PATENT DOCUMENTS

| **Examiner Initial | Document Number | Date | Country | Class | Subclass | Translation Yes I No |
|--------------------|-----------------|------------|---------|-------|----------|----------------------|
| Umw | 3-222367 | 10/01/1991 | Japan | H01L | 29/784 | |
| Umw | 6-224431 | 08/12/1994 | Japan | H01L | 29/784 | |
| Umw | 6-302828 | 10/28/1994 | Japan | H01L | 29/788 | |
| Umw | 8-255878 | 10/01/1996 | Japan | H01L | 27/10 | |

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

| | |
|-----|--|
| Umw | Asakasi, I., et al., "Effects of AlN Buffer Layer on Crystallographic Structure and on Electrical and Optical Properties of GaN and Ga(1-x)Al(x)N [0< x (< or =) 0.4] Films Grown on Sapphire Substrate by MOVPE", <u>J. Crystall Growth</u> , 98, 209-219, (1989) |
| Umw | Alok, D., et al., "Electrical Properties of Thermal Oxide Grown on N-type 6H-Silicon Carbide", <u>Applied Physics Letters</u> , 64, 2845-2846, (May 23, 1994) |
| Umw | Andrieux, M., et al., "Interface and Adhesion of PACVD SiC Based Films on Metals", <u>Supp. "Le Vide: science, technique et applications</u> , 279, 212-214, (1996) |
| Umw | Bachmann, P., et al., "Influence on Surface Modifications on the Electronic Properties of CVD Diamond Films", <u>Diamond and Related Materials</u> , 5, 1378-1383, (1996) |
| Umw | Baglee, D., "Characteristics & Reliability of 100 Angstrom Oxides", <u>IEEE 22nd Annual Proc.: Reliability Physics</u> , Las Vegas, 152-155, (April 3-5, 1984) |

Examiner

*Substitute Disclosure Statement Form (PTO-1449)

Date Considered

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449*

Sheet 2 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

**Examiner
Initial

Beheim, G., et al., "Magnetron Plasma Etching of SiC for Microstructures",
Proc: SPIE - Integrated Optics and Microstructures III, San Jose, CA, 82-86,
(Jan 29, 1996)

Bengtsson, S., et al., "Applications of Aluminum Nitride Films Deposited by
Reactive Sputtering to Silicon-On-Insulator Materials", Japanese J. Applied
Physics, 35, 4175-4181, (1996)

Benjamin, M., et al., "UV Photoemission Study of Heteroepitaxial AlGaN Films
Grown on 6H-SiC", Applied Surface Science, 104/105, 455-460, (1996)

Bermudez, V., et al., "The Growth and Properties of Al and AlN Films on
GaN(0001)-(1 x 1)", J. Applied Physics, 79, 110-119, (Jan. 1996)

Casey, H., et al., "Low Interface Trap Density for Remote Plasma Deposited
SiO₂ on n-type GaN", Applied Phys. Lett., 68, 1850-1852, (March 1996)

Chang, C., et al., "Novel Passivation Dielectrics-The Boron- or
Phosphorus-Doped Hydrogenated Amorphous Silicon Carbide Films", Journal of the
Electrochemical Society, 132, 418-422, (Feb. 1985)

Choi, J., et al., "Effect of Deposition Conditions and Pretreatments on the
Microstructure of MPECVD Diamond Thin Films", Materials Chemistry and Physics,
45, 176-179, (1996)

Clarke, G., et al., "The Infrared Properties of Magnetron-Sputtered
Diamond-Like Thin Films", Thin Solid Films, 280, 130-135, (1996)

Compagnini, G., et al., "Spectroscopic Characterization of Annealed
Si(1-x)C(x) Films", J. Materials Res., 11, 2269-2273, (Sept. 1996)

Dartnell, N., et al., "Reactive Ion Etching of Silicon Carbide
(Si(x)C(1-x))", Vacuum, 46, 349-355, (1995)

Demichelis, F., et al., "Influence of Doping on the Structural and
Optoelectronic Properties of Amorphous and Microcrystalline Silicon Carbide",
Journal of Applied Physics, 72, 1327-1333, (Aug. 15, 1992)

Demichelis, F., et al., "Physical Properties of Undoped and Doped
Microcrystalline SiC:H Deposited By PECVD", Materials Research Society
Symposium Proceedings, 212, Anaheim, CA, 413-418, (4/30 - 5/3, 1991)

Dipert, B., et al., "Flash Memory Goes Mainstream", IEEE Spectrum, 30,
48-52, (1993)

Examiner

Date Considered

*Substitute Disclosure Statement Form (FD-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



RECEIVED

APR 02 1998

Sheet 3 of 7

Form 1449*

Atty. Docket No.: 303.378US1

GROUP 2500

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

Applicant: Leonard Forbes et al.

(Use several sheets if necessary)

Filing Date: July 29, 1997

Group: 1104

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

**Examiner
Initial

Jmus Fissel, A., et al., "Epitaxial Growth of SiC Thin Films on Si-stabilized alpha-SiC (0001) at Low Temperatures by Solid-source Molecular Beam Epitaxy", Journal of Crystal Growth, 154, 72-80, (1995)

| Friedrichs, P., et al., "Interface Properties of Metal-Oxide-Semiconductor Structures on N-Type 6H and 4H-SiC", J. Applied Physics, 79, 7814-7819, (May 15, 1996)

| Fujii, T., et al., "Bonding Structures in Highly Photoconductive a-SiC:H Films Deposited by Hybrid-Plasma Chemical Vapor Deposition", Journal of Non-Crystalline Solids, 198-200, 577-581, (1996)

Jmus Goetzberger, A., et al., Applied Solid State Science: Advances in Materials and Device Research, R. Wolfe, ed., Academic Press, New York, Including pg. 233, (1969)

| Graul, J., et al., "Growth Mechanism of Polycrystalline beta-SiC Layers on Silicon Substrate", Applied Phys. Lett., 21, 67-69, (July 1972)

| Hamakawa, Y., et al., "Optoelectronics and Photovoltaic Applications of Microcrystalline SiC", Materials Research Society Symposium Proceedings, 164, Boston, MA, 291-301, (11/29-12/1, 1989)

Jmus He, Z., et al., "Ion-beam-assisted Deposition of Si-carbide Films", Thin Solid Films, 260, 32-37, (1995)

| Hu, G., "Will Flash Memory Replace Hard Disk Drive?", IEEE Electron Devices Meeting, Session 24, (Dec. 13, 1994)

| Hwang, J., et al., "High Mobility beta-SiC Epilayer Prepared by Low-pressure Rapid Thermal Chemical Vapor Deposition on a (100) Silicon Substrate", Thin Solid Films, 272, 4-6, (1996)

Jmus Jou, S., et al., "Electron Emission Characterization of Diamond Thin Films Grown from a Solid Carbon Source", Thin Solid Films, 280, 256-261, (1996)

| Kothandaraman, M., et al., "Reactive Ion Etching of Trenches in 6H-SiC", J. Electronic Materials, 25, 875-878, (1996)

| Kumbhar, A., et al., "Growth of Clean Amorphous Silicon-Carbon Alloy Films by Hot-Filament Assisted Chemical Vapor Deposition Technique", Applied Phys. Lett., 66, 1741-1743, (April 1995)

Jmus Lakshmi, E., et al., "Interface-State Characteristics of GaN/GaAs MIS Capacitors", Solid-State Electronics, 25, 811-815, (1982)

Examiner

Date Considered

*Substitute Disclosure Statement Form (PFO-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449*

Sheet 4 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

**Examiner
Initial

DMW Lanois, F., et al., "Angle Etch Control for Silicon Carbide Power Devices", Applied Phys. Lett., **69**, 236-238, (July 1996)

| Lau, S., et al., "Optoelectronic Properties of Highly Conductive Microcrystalline SiC Produced by Laser Crystallization of Amorphous SiC", J. of Non-Crystalline Solids, **198-200**, 907-910, (1996)

| Leggieri, G., et al., "Laser Ablation Deposition of Silicon Carbide Films", Applied Surface Science, **96-98**, 866-869, (1996)

| Lei, T., et al., "Epitaxial Growth and Characterization of Zinc-Blende Gallium Nitride on (001) Silicon", J. Appl. Phys., **71**, 4933-4943, (May 1992)

DMW | Liu, J., et al., "Formation of SiC Films on Silicon Field Emitters", Materials Res. Soc. Symp. Proc., **311**, San Francisco, CA, (April 13-15, 1993)

| Liu, J., et al., "Modification of Si Field Emitter Surfaces by Chemical Conversion to SiC", J. Vac. Sci. Technology, **B 12**, 717-721, (1994)

| Luo, J., et al., "Localized Epitaxial Growth of Hexagonal and Cubic SiC Films on Si by Vacuum Annealing", Applied Phys. Lett., **69**, 916-918, (Aug. 1996)

| Martins, R., et al., "Transport Properties of Doped Silicon Oxycarbide Microcrystalline Films Produced by Spatial Separation Techniques", Solar Energy Materials and Solar Cells, **41-42**, 493-517, (1996)

DMW | Martins, R., et al., "Wide Band Gap Microcrystalline Silicon Thin Films", Diffusion and Defect Data: Solid State Phenomena, **44-46, Part 1**, Scittec Publications, 299-346, (1995)

| Maury, F., et al., "Chemical Vapor Co-Deposition of C and SiC at Moderate Temperature for the Synthesis of Compositionally Modulated Si(x)C(1-x) Ceramic Layers", Surface and Coatings Technology, **76-77**, 119-125, (1995)

| McLane, G., et al., "High Etch Rates of SiC in Magnetron Enhanced SF(6) Plasmas", Applied Phys. Lett., **68**, 3755-3757, (June 1996)

| Mogab, C., et al., "Conversion of Si to Epitaxial SiC by Reaction with C(2)H(2)", J. Applied Physics, **43**, 1075-1084, (March 1974)

DMW | Molnar, R., et al., "Growth of Gallium Nitride by Electron-Cyclotron Resonance Plasma-Assisted Molecular-Beam Epitaxy: The Role of Charged Species", J. Appl. Phys., **76**, 4587-4595, (1994)

Examiner

D. Marki Wilkin

Date Considered

4/21/98

*Substitute Disclosure Statement Form (FD-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449*

Sheet 5 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

**Examiner
Initial

DMW Muller, K., et al., "Trench Storage Node Technology for Gigabit DRAM Generations", Digest IEEE Int. Electron Devices Meeting, San Francisco, CA, 594-597, (Dec. 1996)

DMW Nemanich, P., et al., "Diamond Negative Electron Affinity Surfaces, Structures and Devices", Proc.: Third International Conference on Applications of Diamond Films and Related Materials, 1, Gaithersburg, MD, 17-24, (1995)

I Nemanich, R., et al., "Negative Electron Affinity Surfaces of Aluminum Nitride and Diamond", Diamond and Related Materials, 5, 790-796, (1996)

I Ouyang, M., et al., "Deposition of Diamond-Like Carbon Films via Excimer Laser Ablation of Polybutadiene", Materials Science and Engineering, B39, 228-231, (1996)

DMW Pankove, J., "Photoelectric Emission", In: Optical Processes in Semiconductors, Dover Publications Inc., New York, 287-301, (1971)

DMW Pankove, J., et al., "Photoemission from GaN", Applied Phys. Lett., 25, 53-55, (1974)

Wm Papadas, C., et al., "Modeling of the Intrinsic Retention Characteristics of FLOTOX EEPROM Cells Under Elevated Temperature Conditions", IEEE Transaction on Electron Devices, 42, 678-682, (April 1995)

I Patuwathavithane, C., et al., "Oxidation Studies for 6H-SiC", Proc: 4th Int. Conf. on Amorphous and Crystalline Silicon Carbide IV, Santa Clara, CA, 163-169, (Oct. 9-11, 1991)

I Pereyra, I., et al., "Wide Gap a-Si(1-x)C(x): H Thin Films Obtained Under Starving Plasma Deposition Conditions", J. Non-Crystalline Solids, 201, 110-118, (1996)

Wm Pollack, S., "Electron Transport Through Insulating Thin Films", Appl. Solid-State Science, 1, 345-355, (1969)

Wm Prendergast, J., "FLASH or DRAM: Memory Choice for the Future", IEEE Electron Device Meeting, Session 25, Phoenix, AZ, (1995)

Wm Rahman, M., et al., "Preparation and Electrical Properties of An Amorphous SiC/ Crystalline Si p(+)n Heterostructure", Japanese J. Applied Physics, 23, 515-524, (May 1984)

Examiner

Date Considered

*Substitute Disclosure Statement Form (PTO-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



Form 1449*

Sheet 6 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

**Examiner
Initial

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

- Renlund, G., et al., "Silicon Oxycarbide Glasses: Part I. Preparation and Chemistry", Journal of Materials Research, 6, 2716-2722, (December 1991)*
- Renlund, G., et al., "Silicon Oxycarbide Glasses: Part II. Structure and Properties", Journal of Materials Research, 6, 2723-2734, (December 1991)*
- Schmidt, I., et al., "Low Temperature Diamond Growth Using Fluorinated Hydrocarbons", Diamond and Related Materials, 5, 1318-1322, (1996)*
- Serre, C., et al., "Ion-Beam Synthesis of Amorphous SiC Films: Structural Analysis and Recrystallization", J. Appl. Phys., 79, 6907-6913, (May 1996)*
- Sim, S., et al., "A New Planar Stacked Technology (PST) for Scaled and Embedded DRAMs", Digest IEEE Int. Electron Devices Meeting, San Francisco, CA, 504-507, (Dec. 1996)*
- Suzaki, Y., et al., "Quantum Size Effects of a-Si(:H)/a-SiC(:H) Multilayer Films Prepared by rf Sputtering", Abstracts of Papers Published in the Int. J. Japanese Soc. for Precision Engineering, 28, Abstract of Paper in vol. 60, 182, (June 1994)*
- Svirskova, N., et al., "Deposition Conditions and Density-of-States Spectrum of a-Si(1-x)C(x) :H Films Obtained by Sputtering", Semiconductors, 28, 1164-1169, (Dec. 1994)*
- Sze, S., Physics of Semiconductors, 2nd Edition., John Wiley & Sons, Pub., New York, ISBN 0471056618, (1981)*
- Tarui, Y., "Flash Memory Features Simple Structure, Superior Integration", JEE, 30, 84-87, (Sept. 1993)*
- Tenhover, M., et al., "DC-Magnetron Sputtered Silicon Carbide", Materials Res. Soc. Symp. Proc., 356, Boston, MA, 227-232, (11/28-12/02, 1994)*
- Thomas, J., et al., "Plasma Etching and Surface Analysis of a-SiC :H Films Deposited by Low Temperature Plasma Enhanced Chemical Vapor Deposition", Materials Res. Soc. Symp. Proc., 334, Boston, MA, 445-450, (11/29-12/02, 1993)*
- Tiwari, S., et al., "A silicon nanocrystal based memory", Appl. Physics Lett., 68, 1377-1379, (1996)*
- Tiwari, S., et al., "Volatile and Non-Volatile Memories in Silicon with Nano-Crystal Storage", Abstract of IEEE Int. Electron Devices Meeting, Washington, DC, 521-524, (Dec. 1995)*

Examiner

V. Markin
*Substitute Disclosure Statement form (PTO-1449)

Date Considered

7/21/99

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

MAR 26 1998

Form 1449*

Sheet 7 of 7

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 1104

**Examiner
Initial

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

- Tucker, C., et al., "Ion-beam-assisted Deposition of Nonhydrogenated a-Si:C Films", Can. J. Physics, 74, 97-101, (1996)
- van der Weide, J., et al., "Negative-electron-affinity Effects on the Diamond (100) Surface", Physical Review B [Condensed Matter], 50, 5803-5806, (Aug. 15, 1994)
- Vodakov, Y., et al., "Diffusion and Solubility of Impurities in Silicon Carbide", In: Silicon Carbide, R.C. Marshall, et al., eds., Univ. of South Carolina Press, 508-519, (1973)
- Wahab, Q., et al., "3C-SiC / Si / 3C-SiC Epitaxial Trilayer Films Deposited on Si (111) Substrates by Reactive Magnetron Sputtering", J. Materials Res., 10, 1349-1351, (June 1995)
- Watanabe, A., et al., "SiC Thin Film Preparation by ArF Excimer Laser Chemical Vapor Deposition. Part 1: Rate of Photolysis of Alkylsilanes by ArF Excimer Laser and their Decomposition Products", Thin Solid Films, 274, 70-75, (1996)
- Wolter, S., et al., "Textured Growth of Diamond on Silicon via in situ Carburization and Bias-Enhanced Nucleation", Appl. Phys. Lett., 62, 1215-1217, (March 1993)
- Wu, K., et al., "The Growth and Characterization of Silicon/Silicon Carbide Heteroepitaxial Films on Silicon Substrates by Rapid Thermal Chemical Vapor Deposition", Japanese J. Appl. Phys., 35, 3836-3840, (1996)
- Yamaguchi, Y., et al., "Properties of Heteroepitaxial 3C-SiC Films Grown by LPCVD", Digest of Tech. Papers: 8th Int. Conf. on Solid-State Sensors and Actuators and Eurosensors IX, vol. 2, Stockholm, Sweden, 190-193, (June 1995)
- Yamanashi, H., et al., "Deposition of Silicon Compound Thin Films in DC Discharge Plasma Using Hydrogen-Hexamethyldisilane Gas Mixture", Proc.: Int. Symp. on Surfaces and Thin Films of Electronic Materials, Bull. of the Res. Institute of Electronics, Shizuoka University, 30, 95-98, (1995)
- Yee, A., et al., "The Effect of Nitrogen on Pulsed Laser Deposition of Amorphous Silicon Carbide Films: Properties and Structure", J. Materials Research, 11, 1979-1986, (1996)
- Yoder, M., "Wide Bandgap Semiconductor Materials and Devices", IEEE Transactions on Electron Devices, 43, 1633-1636, (October 1996)

Examiner

Date Considered

*Substitute Disclosure Statement Form (FD-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



#9

Form 1449*

Sheet 1 of 1

INFORMATION DISCLOSURE STATEMENT
BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.: 303.378US1

Serial No. 08/903,453

Applicant: Leonard Forbes et al.

Filing Date: July 29, 1997

Group: 2815

U.S. PATENT DOCUMENTS

| **Examiner Initial | Document Number | Date | Name | Class | Subclass | Filing Date If Appropriate |
|-----------------------|-----------------|------------|---------|-------|----------|-------------------------------|
| <i>bm</i> | 5,846,859 | 12/08/1998 | Lee, S. | 438 | 253 | 02/23/96 |

FOREIGN PATENT DOCUMENTS

| **Examiner Initial | Document Number | Date | Country | Class | Subclass | Translation Yes No |
|-----------------------|-----------------|------------|---------|-------|----------|-------------------------|
| <i>bm</i> | 60-184681 | 09/01/1985 | Japan | | | |
| <i>bm</i> | 60-242678 | 12/01/1985 | Japan | | | |

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, Etc.)

Examiner

V. Marki Wallan

Date Considered

4/21/99

*Substitute Disclosure Statement Form (PTO-1449)

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.